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obesity, and weight gain. Among studies in Australia, during a four year study, women who reported greater sitting time were less likely to maintain weight [9]. In another study among Australian men and women, with a separate analysis of women, sitting and television viewing time were detrimentally associated with BMI, independent of leisure time physical activity [10]. To our knowledge no study has been conducted to determine the association of sedentary behavior and cardiometabolic markers like BMI, waist circumference and waist hip ratio among Chinese females.

BMI is a better predictor of cardiovascular disease and diabetes than waist circumference (WC) in young and middle-aged. Moreover, measurement of both WC and BMI may be a better predictor of cardiovascular disease and diabetes mellitus than BMI or WC alone [11]. Waist circumference is used as an alternative to measure fat content. is study particularly explored how sedentary behavior will a ect anthropometric measurements which are considered as the risk factors of cardio-metabolic diseases.

Methods

A cross-sectional survey was administered to Chinese females to determine the association of sedentary behaviour and anthropometric measurements. e participants of this study were Chinese female students recruited from University Tunku Abdul Rahman (UTAR), Sungai Long Campus, Malaysia. e participants were from Faculty of Medicine and Health Sciences (FMHS), Faculty of Accountancy and Management (FAM), Faculty of Creative Industries (FCI), Faculty of Engineering and Science (FES) and Foundation in Arts (FIA). A total of 210 students participated in this study. Out of 210 females, 76 students were from FMHS, 60 students from FAM, 31 students from FIA, 25 students from FES and 18 students from FCI.

Subjects who su er from any form of cancer, thyroid disease, congenital malformations, skeletal deformities and those on walking aids were excluded. We obtained ethical approval for the study from UTAR ethical committee. Participants were informed regarding the procedure and con dentiality was ensured. Informed consent was obtained from all participants. Demographic data was gathered using a self-designed questionnaire.

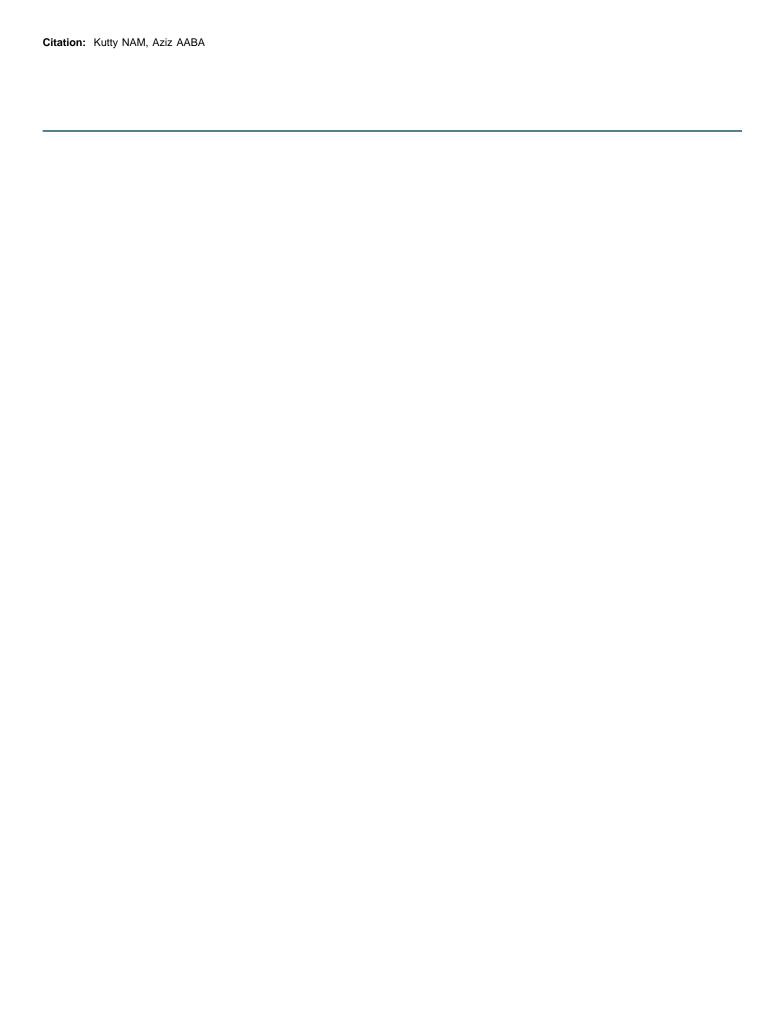### Instrument: Sedentary Behaviour Questionnaire (SBQ)

Sedentary behaviour was assessed using sedentary behaviour questionnaire (SBQ). A recent systematic review suggests that self- and proxy-report tools generally display acceptable reliability and validity in assessing sedentary behavior [12]. e Sedentary Behavior Questionnaire (SBQ) was taken from the Sedentary Behavior Research Network (SBRN) and permission was received via E-mail. Other than using SBQ, other questionnaire has also been used that consist of the consent form, demographic data that consist of their name, faculty, age, telephone number, smoking and alcohol status and sleep duration and another questionnaire for me to lled in their weight, height, waist and hip circumference. e SBQ consist of two sections which are the weekday and weekend part. Both section have the same questions and they have to answer based on how much time they spend doing the nine sedentary behaviors that were listed there which are watching television, playing computer or video games, sitting and listening to music, sitting and talking on the phone, doing paperwork or computer work, sitting and reading books, playing musical instruments, doing artwork or cra s and sitting and driving in the car. e participants need to choose between none, 15 minutes or less, 30 minutes, 1 hour, 2 hours, 3 hours, 4 hours, 5 hours and 6 hours.

e body weight of the subjects was measured with no shoes and light clothes and height was measured using stadiometer. e waist and hip circumference were measured using a non-elastic measuring tape and the measurement was taken to the nearest 0.1 cm. For waist circumference measurement, the participants were asked to stand within shoulder width and they were asked to relax their abdomen and the measurement was taken in between the lateral part of iliac crest and the lowest part of the rib [13]. For hip circumference, measurement was taken at the most protruded of gluteal muscles (buttock). e privacy of the participant was ensured by the researchers. e BMI was calculated by dividing the weight in kg by height in meter squared while waist to hip ratio was calculated by divide the waist circumference by hip circumference.

Discussion

e study concluded that sedentary behaviour is not detrimentally associated with waist circumference, BMI and waist-hip ratio among young Chinese females. Participants spent more time in doing paperwork or computer work during weekday and weekend. is might be due to a lot of assignments from lecturers. e survey was conducted during short semester. Usually short semester is considered very rushing for the students since the classes will be over in two months' time.

e second common sedentary behaviour spent by the majority of the participants is sitting listening to music on the radio, tapes or CDs. Statistics show that students like to listen to music while doing their work because they nd that wdse the(e)-5(c)-2.9(3] 1)5(t)16.5esm(

Sum of doing sedentary behaviours	Waist to hip ratio				Chi-Square value	Degree of freedom	P-Value
	<0.75	**0.75 – 0.79**	**0.80 – 0.86**	**>0.86**			
<6 hours	6 (14.0%)	23 (53.5%)	14 (32.6%)	0 (0.0%)			
>6 hours	30 (18.0%)	75 (44.9%)	52 (31.1%)	10 (6.0%)	3.457	3	0.326
Total	36 (17.1%)	98 (46.7%)	66 (31.4%)	10 (4.8%)			

Table 7: Association of sedentary behaviours with waist to hip ratio.

Conclusion

is is the rst study to report the association of sedentary behavior with cardiometabolic risk biomarkers among Chinese females. ese observations further highlight the role of other factors like dietary habits and physical activity more than sedentary behavior among Chinese females. As we did not distinguish between physical activity and leisure-time sitting, we are not able to argue that speci c emphasis ought to be given to one context over the other with respect to targeted intervention strategies to improve health outcomes. It is possible that factors not directly accounted for in our analysis could have contributed to the healthy range of cardiometabolic risk biomarkers irrespective of sedentary behavior.

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